STAR Scalers

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Counters and Scalers

- TCU Counters
  - keep count of each TCU physics bit set
  - keep count of each trigger word
  - read out at end of run
- Scaler boards - 10 this year (5 pairs)
  - Count patterns each RHIC Strobe (9.37 MHz)
  - Read out to data base frequently (2 min?)

TCU Physics Bits

These will be whatever bits we send to the TCU as physics input from the last DSM.

Physics Scaler Inputs

	Set 1	Set 2	Set 3
bit	AuAu	pp	dAu
0	CTB M>th1	CTB M>th1	CTB M>th1
1	CTB M>th2	CTB M>th2	CTB M>th2
2	CTB M>th3	BBC M>th	BBC M>th
3	UPC	UPC	UPC
4	Blue	Blue	Blue.Yellow
5	Yellow	Yellow	
6	TAC	BBC TAC	TAC[1]
7	BBC E.W	BBC E.W	BBC E.W
8	ZDC E.W.sum < th	ZDC E.W.sum < th	ZDC E.W.sum < th
9	FPD	FPD	FPD
10	HiTower >th1	HiTower >th1	HiTower >th1
11	HiTower >th2	HiTower >th2	HiTower >th2
12	Energy >th	Energy >th	Energy >th
13	Jet Patch>th1	Jet Patch>th1	Jet Patch>th1
14	Jet Patch>th2	Jet Patch>th2	Jet Patch>th2
15	special	special	special
16	TPC Live	TPC Live	TPC Live
17	SVT Live	SVT Live	SVT Live
18	BTOW Live	BTOW Live	BTOW Live
19	FTPC Live	FTPC Live	FTPC Live
20	TOF Live	TOF Live	TOF Live
21	SSD Live	SSD Live	SSD Live
22	ETOW Live	ETOW Live	ETOW Live
23	PMD Live	PMD Live	PMD Live

Note: We are using the Tower, not the SMD, live bits here.

Spin Scaler Inputs

bit	Luminosity	BBC Asymmetry	FPD Asymmetry
0	BBC:E(small).W(small)loose	BBC:E(top).W(any)	BBC E.W
1	BBC:E(small).W(small)tight	BBC:E(bot).W(any)	max FPD sum>th1
2	BBC:E(small) M=1	BBC:E(North).W(any)	max FPD sum>th2
3	BBC:E(small) M>N	BBC:E(South).W(any)	max FPD sum>th3
4	BBC:W(small) M=1	BBC:W(top).E(any)	max FPD sum>th4
5	BBC:W(small) M>N	BBC:W(bot).E(any)	FPD:E(top)>N
6	BBC:E(large) M>N	BBC:W(North).E(any)	FPD:E(bot)>N
7	BBC:W(large) M>N	BBC:W(South).E(any)	FPD:E(North)>N
8	ZDC:E.W w/timing cut	BBC:E(1^{st} circle)M>0	FPD:E(South)>N
9	ZDC: E > th1	BBC:W(1^{st} circle)M>0	FPD:W(top)>N
10	ZDC: E > th2	BBC:E(2^{nd} circle)M>0	FPD:W(bot)>N
11	ZDC: W>th1	BBC:W(2^{nd} circle)M>0	FPD:W(North)>N
12	ZDC: W>th2	BBC:E(large)M>N	FPD:W(South)>N
13	EMC: E>th1	BBC:W(large)M>N	max FPD Tower ID1
14	EMC: E>th2	ZDC:E.W	max FPD Tower ID2
15	CTB: M>th1	EMC:E>th	max FPD Tower ID3
16	CTB: M>th2	CTB: M>th1	max FPD Tower ID4
17	BX0	BX0	BX0
18	BX1	BX1	BX1
19	BX2	BX2	BX2
20	BX3	BX3	BX3
21	BX4	BX4	BX4
22	BX5	BX5	BX5
23	BX6	BX6	BX6

We intend to set these up in pairs, reading one of the pair every 2 minutes and storing the data in the database with a timestamp.